

**REMARKS**

Upon entry of the claim amendments, Claims 1-11 and 13-36 will be all the claims pending in the application.

Applicants have incorporated subject matter from Claim 12 into Claim 11. Claim 12 has been canceled.

No new matter has been added.

**I. RESPONSE TO OBJECTION TO THE CLAIMS**

Referring to page 2 of the Office Action, Claims 4, 5, 7, 9-11, 13-15, 17, 18, 23 and 25-34 have been objected to as being improper multiple dependent claims.

In response, Applicants have revised the dependency of Claims 4-5, 7, 9-11, 13-15, 17-18, 23, and 28-34. Withdrawal of the present objection is requested.

**II. RESPONSE TO REJECTION UNDER 35 U.S.C. § 102**

Claims 1-17, 28-31, 33, and 35-36 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 5,698,177 (“Pratsinis”).

Applicants respectfully traverse. Pratsinis does not disclose, either expressly or inherently, the presently claimed subject matter.

Claims 1 and 35 are the only pending independent claims.

Claim 1 is directed to a titanium oxide produced through reaction between a titanium halide-containing gas and an oxidative gas. The rutile content of the titanium oxide of Claim 1 is 5% or less. The specific surface area of the titanium oxide of Claim 1, as measured by means of a BET one-point method; i.e., B (m<sup>2</sup>/g), and the halogen content of the titanium oxide of Claim 1; i.e., C (mass ppm), satisfy the following relation: C ≤ 650e<sup>0.02B</sup>. Claim 1 further recites that, when an aqueous suspension containing the titanium oxide in an amount of 1 mass% is allowed to stand at 20 °C for 30 minutes, the amount of halogen which is transferred from the titanium oxide to a liquid phase is at least 80 mass% on the basis of the entire amount of halogen contained in the titanium oxide.

Claim 35 is directed to a titanium oxide. The rutile content of the titanium oxide of Claim 35 is 5% or less. The specific surface area, as measured by means of a BET one-point method, of the titanium oxide of Claim 35 is 10 to 200 m<sup>2</sup>/g. The 90% cumulative mass particle size, measured by a laser diffraction particle size analyzer, of the titanium oxide of Claim 35 is 2.5 μm or less. The specific surface area of the titanium oxide of Claim 35, as measured by means of a BET one-point method; i.e., B (m<sup>2</sup>/g), and the halogen content of the titanium oxide of Claim 35; i.e., C<sub>i</sub> (mass ppm), satisfy the following relation: 0 ≤ C<sub>i</sub> ≤ 650ke<sup>0.02B</sup>, wherein k is 0.20.

In the Office Action, the examiner does not provide any comment on why he believes the titanium dioxide of Pratsinis satisfies (i) the recitation of Claim 1 relating to the relation “C ≤ 650e0.02B”, (ii) the recitation of Claim 1 relating to the amount of halogen which is transferred, or (iii) the recitation of Claim 35 relating to the relation “0 ≤ C<sub>i</sub> ≤ 650ke<sup>0.02B</sup> wherein k is 0.20.” Other features of independent Claims 1 and 35 are also not discussed.

Accordingly, the examiner has failed to establish that each and every element as set forth in Claims 1 and 35 is found, either expressly or inherently described, in a single prior art reference, as is required for an anticipation under §102. Clearly, Pratsinis does not *expressly* disclose each and every element as set forth in Claims 1 and 35. With respect to any alleged inherent description in Pratsinis, a basis in fact and/or technical reasoning to reasonably support such an assertion is not identified in the Office Action.

Indeed, Pratsinis does not inherently anticipate Claim 1 or Claim 35. Pratsinis does not contain a disclosure that necessarily produces a titanium oxide that satisfies all of the recitations of present Claim 1 or 35.

In Pratsinis’ Example 1, four different powders were produced. Powders F1, F2 and F3 of Example 1 of Pratsinis have a rutile content greater than 5% and, thus, do not satisfy the recitations of Claim 1 or 35. The fact that powders F1, F2 and F3 are outside the scope of Claim 1 and 35 helps to disprove any broad assertion that Pratsinis may inherently satisfy the recitations of Claim 1 or 35.

Although powder F4 of Example 1 of Pratsinis has a rutile content of less than 0.1, powder F4 of Example 1 of Pratsinis also fails to support an assertion that Pratsinis inherently discloses the presently claimed subject matter.

In Pratsinis, the ratio of the flow rate of an inert gas to  $TiCl_4$  is about 740 times, given that column 10, line 32, states that the flow rate is  $1.4 \times 10^{-4}$  mol/min, and Table 1 states that the flow rate of air is 2.314 L/min.

In contrast, in the present application, the ratio of the flow rate of an inert gas to  $TiCl_4$  is preferably 0.1 to 20 times, as described at page 21, lines 12-23. This is because if a large amount of an inert gas is present, the large amount of inert gas should also be heated, and as a result, the titanium oxide is not sufficiently heated to thereby retain chloride inside the titanium oxide particles. If a large amount of chloride is retained inside titanium oxide particles, the amount of chloride that is difficult to remove by water increases. Therefore, powder F4 of Pratsinis can never satisfy the presently claimed requirements.

With respect to Example 2 of Pratsinis, it does not contain sufficient information to enable one to determine whether the titanium dioxide satisfies the recitations of the present claims. For example, Example 2 does not recite the temperature conditions that were employed. Since Example 2 does not set forth the various conditions for producing the titanium dioxide, Example 2 does not inherently anticipate the present claims.

With respect to Example 3 of Pratsinis, all of the powders that are described in Example 3 had too high a rutile content and, thus, do not satisfy the present claims.

With respect to Example 4 of Pratsinis, it does not set forth the rutile content or the temperature of the reaction. Thus, it would be impossible for one to determine whether Example 4 satisfies the recitations of the present claims. Therefore, Example 4 does not inherently satisfy the recitations of the present claims.

Applicants would like to separately argue the patentability of Claim 13. Claim 13 depends from Claim 11, which depends from Claim 1. Claim 13 is directed to a process for producing a titanium oxide according to claim 11, wherein each of the titanium halogenide-

containing gas and the oxidative gas is preliminarily heated at a temperature of at least 600°C but less than 1,100°C before being introduced into the reactor.

The examiner states that the feed gases in Pratsinis will “inherently be ‘preheated’” as they approach the hot burner flame.

However, even if, for the sake of argument, one were to assume that the gases in Pratsinis would be preheated before they reached the flame, this does not mean that they would be preheated to a temperature of at least 600°C to less than 1100°C before being introduced into the reactor. The flame in Pratsinis is in a reactor, and there is no indication in Pratsinis that the gases would be preheated to the temperature set forth in Claim 13 before they are introduced into the reactor.

In view of the above, Applicants request reconsideration and withdrawal of the present §102 rejection.

### **III. RESPONSE TO REJECTION UNDER 35 U.S.C. § 102**

Referring to pages 3 and 4 of the Office Action, Claims 11, 13-14, 17 and 28-30 have been rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent 2,240,343 (“Muskat”).

Applicants respectfully traverse.

Claim 12 was not included in the present rejection. Applicants have incorporated subject matter from Claim 12 into Claim 11. Accordingly, Claim 11 is not anticipated by Muskat. In addition, each of Claims 13-14, 17 and 28-30 depends from Claim 11. Accordingly, Claims 13-14, 17 and 28-30 are also not anticipated by Muskat, at least by virtue of their dependency.

Withdrawal of the present §102 rejection is requested.

### **IV. RESPONSE TO REJECTION UNDER 35 U.S.C. § 102**

Referring to page 4 of the Office Action, Claims 31-34 have been rejected under 35 U.S.C. § 102(b) as anticipated by applicants admission set forth in the “Background” portion of the present specification at page 1, line 30 to page 2, line 8.

Applicants respectfully traverse.

Claims 31-34 ultimately depend from Claim 1, and require the recitations of Claim 1 to be satisfied before these claims can be said to be anticipated. The present specification in the Background portion of the specification does not admit that the recitations of Claim 1 are in the prior art.

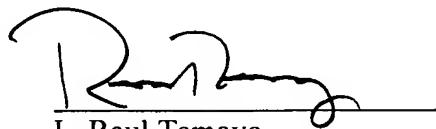
Withdrawal of this §102 rejection is requested.

**V. CONCLUSION**

Reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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